REMARKS

The Examiner has requested a statement with the written consent of all assignees. Applicant provided a Consent of Assignee Certificate Under 37 CFR 3.73 at the time of filing the present reissue patent application. A copy of the certificate is enclosed herewith for the Examiner's convenience.

The Examiner has requested a surrender of the original patent before the reissue application can be allowed. Applicant is in the process of obtaining the original patent, and will surrender the same prior to a formal allowance. It is requested that an *Ex parte Quayle* action be issued once the claims are allowed to permit Applicant to attend to the formality of surrendering the original patent.

The Examiner rejected claims 18, 19, 22, and 27 under 35 USC 112, second paragraph, as being indefinite. The above amendments to claims 18 and 22 overcome the rejection. The Examiner provided no explanation as to why claims 19 and 27 were rejected, and Applicant believes that these claims meet the requirements of 35 USC 112, second paragraph. Applicant therefore respectfully requests withdrawal of the rejection of claims 18, 19, 22, and 27 under 35 USC 112.

The Examiner rejected claims 22-25 and 27 under 35 USC 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as obvious in view of Wood (4,442,891). Claim 22 recites, among other elements and limitations, "a tilt motor selectively tilting the at least one camera ..." and "a rotate motor rotating the at least one camera...."

Applicant respectfully disagrees with the Examiner's statement that "mechanism 36's rotational and radial motion on element 34 necessarily suggests that

Wood's mechanism employs two (tilt and rotate) motors." The Examiner has provided no reason why it would be inherent or necessary in Wood to have both a tilt and a rotate motor. Rather, the Examiner has merely made an unsupported conclusion as to what Wood teaches or suggests.

Wood employs a *single* motor 36 that has an output shaft 34 having an eccentric or stepped profile (see Fig. 3A). The end of the hose 30 is interconnected with the output shaft 34, and any rotational and/or radial movement of the end of the hose would appear to be attributable to this one motor and eccentric output shaft arrangement. As to tilting the end of the hose, Wood only teaches the use of differently-angled end pieces 32 to align with the angle of the lateral pipe (see column 4, lines 13-16). Wood therefore actually teaches *away* from the use of a tilt motor for that purpose.

In light of the foregoing, claim 22 is allowable over Wood. Claims 23-25 and 27 depend from claim 22 and are therefore allowable for the same reasons. Claims 23-25 and 27 also contain additional subject matter that makes them separately allowable over claim 22.

The Examiner rejected claims 18 and 19 under 35 USC 103(a) as obvious in view of Kipp (5,571,977). Claim 18 recites, among other elements and limitations, "a propulsion motor carried by the frame, and operatively interconnected with the movable friction member to cause movement of the friction member to move the apparatus with respect to the main conduit." It is the Examiner's position that it would have been obvious to employ a motor to rotate the members 62 to drive the apparatus because Kipp teaches that it is known to employ driven wheels.

As conceded by the Examiner, Kipp does not refer to the use of a motor to power the members 62. Rather, the Examiner *assumes* a motor. Kipp does not provide any teaching at all on the subject except for the unexplained and non-enabled statement, "Each set of rollers 60 has at least one driven roller 62" at column 6, line 17. Kipp does not demonstrate that it is known in the lateral inspection arts to use a propulsion motor to drive the rollers of the apparatus. The cryptic and unsupported statement quoted above from Kipp does not provide any suggestion to use a motor for the purpose of driving the rollers 62. The Examiner has therefore failed to demonstrate all elements of claim 18 in the prior art.

Further, Kipp does not teach anything about the state of the art with respect to driven rollers because Kipp does not enable driven rollers. The mere statement in Kipp that there is "at least one driven roller 62" does not support the conclusion that it is known in the art to use a driven roller. For example, if a patent on an automobile off-handedly mentions that the engine uses water as its fuel, but provides no further support for such an engine, one cannot conclude that water-fueled engines are known in the art.

In light of the foregoing, Applicant respectfully submits that claim 18 is allowable. Claim 19 depends from claim 18, and is therefore also allowable for the above reasons and also because it recites other elements and limitations not taught or suggested in the prior art.

The Examiner objected to claims 20 and 21 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in

independent form. Applicant has rewritten claim 20 in independent form and claim 20 is therefore now allowable.

Applicant submits that all claims are in condition for allowance and requests allowance of claims 1-27.

Respectfully submitted,

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Appendix A
Current Status of Claims

1. An apparatus for inspecting a lateral conduit from a main conduit, the apparatus comprising:

a frame;

a drive motor interconnected with the frame;

at least one drive gear selectively rotated by the drive motor in one of an insertion direction and a retraction direction;

a push rod cable engaged by the at least one drive gear such that rotation of the at least one drive gear in the insertion and retraction directions causes respective insertion and retraction of the push rod cable with respect to the lateral conduit, the push rod cable including

a core having sufficient longitudinal compressive rigidity to allow insertion of the push rod cable into the lateral conduit and having sufficient transverse flexibility to negotiate substantially all bends within the lateral conduit,

a push rod circuitry disposed along an outside surface of the core; and

a lateral camera interconnected with the push rod cable for insertion into the lateral conduit with the push rod cable, wherein the push rod circuitry contains the necessary electrical and video circuitry to operate the lateral camera;

a movable friction member interconnected with the frame for movement with respect to the frame, and adapted to frictionally engage an inner surface of a wall of the main conduit; and

a propulsion motor interconnected with the frame, and operatively interconnected with the movable friction member for selective movement of the friction member to cause movement of the apparatus in one of a forward and reverse direction with respect to the main conduit.

2. The apparatus of claim 1, wherein the push rod cable includes a shell substantially encasing the push rod circuitry and the core.

3. The apparatus of claim 2, wherein the drive gear frictionally engages an outer surface of the shell.

4. The apparatus of claim 2, wherein the drive gear includes a plurality of drive gear teeth that at least partially impinge on an outer surface of the shell to facilitate insertion and retraction of the push rod cable with respect to the lateral conduit.

5. The apparatus of claim 2, further comprising at least one pressure roller, wherein the at least one pressure roller applies pressure to a portion of the push rod cable to facilitate engagement of an outer surface of the shell by the at least one drive gear.

6. The apparatus of claim 5, wherein the at least one pressure roller includes at least one spring that biases the at least one pressure roller against the push rod cable.

7. The apparatus of claim 6, wherein the at least one spring enables the at least one pressure roller to apply about 80-100 psi pressure to the portion of the push rod cable.

8. The apparatus of claim 5, wherein the at least one drive gear includes three drive gears, and wherein the at least one pressure roller includes three pressure rollers.

9. The apparatus of claim 1, further comprising a remote control station and a supply cable interconnecting the remote control station with the apparatus, the supply cable including all electrical and video circuitry necessary to operate the apparatus from the control station and to allow inspection of the lateral conduit through the lateral camera.

10. The apparatus of claim 1, wherein the propulsion motor is more powerful than the drive motor, and wherein the drive motor is adapted to be selectively locked, thereby preventing rotation of the at least one drive gear in either the insertion direction or retraction direction to permit the propulsion motor to be engaged to move the apparatus in the forward direction and in the reverse direction in rapid succession to overcome an obstruction encountered within the lateral conduit.

11. The apparatus of claim 1, further comprising:

a launch chute assembly interconnected with a front portion of the frame, the launch chute assembly at least partially supporting the lateral camera when the lateral camera is in a fully retracted position; and

a rotate motor interconnected with the frame and with the launch chute assembly, and adapted to selectively rotate the launch chute assembly in one of a clockwise and a counterclockwise direction about a rotate axis that is generally parallel to the longitudinal axis.

12. The apparatus of claim 11, further comprising a main camera interconnected with the launch chute assembly for rotation therewith about the rotate axis.

13. The apparatus of claim 12, further comprising a remote control station and a supply cable interconnecting the remote control station with the apparatus, the supply cable including all electrical and video circuitry necessary to operate the apparatus from the control station, the relative positions of the lateral camera and an opening to the lateral conduit being viewable through the main camera from the remote control station, wherein the lateral conduit may be inspected through the lateral camera from the remote control station.

14. The apparatus of claim 11, wherein the launch chute assembly includes a launch chute member, and wherein the lateral camera is at least partially supported by the launch chute when the lateral camera is in the fully retracted position.

15. The apparatus of claim 14, wherein the launch chute member defines a channel in which the lateral camera is at least partially housed when the lateral camera is in the fully retracted position.

16. An apparatus for inspecting a lateral conduit from a main conduit, the apparatus comprising:

a frame;

a drive motor interconnected with the frame;

at least one drive gear selectively rotated by the drive motor in one of an insertion direction and a retraction direction;

a push rod cable engaged by the at least one drive gear such that rotation of the at least one drive gear in the insertion and retraction directions causes respective insertion and retraction of the push rod cable with respect to the lateral conduit, the push rod cable including

a core having sufficient longitudinal compressive rigidity to allow insertion of the push rod cable into the lateral conduit and having sufficient transverse flexibility to negotiate substantially all bends within the lateral conduit, and

a push rod circuitry disposed along an outside surface of the core;

a lateral camera interconnected with the push rod cable for insertion into the lateral conduit with the push rod cable, wherein the push rod circuitry contains the necessary electrical and video circuitry to operate the lateral camera;

a launch chute assembly interconnected with a front portion of the frame, the launch chute assembly at least partially supporting the lateral camera when the lateral camera is in a fully retracted position;

a rotate motor interconnected with the frame and with the launch chute assembly and adapted to selectively rotate the launch chute assembly in one of a clockwise and a counterclockwise direction about a rotate axis that is generally parallel to the longitudinal axis;

the launch chute assembly including a launch chute member;

said lateral camera being at least partially supported by the launch chute member when the lateral camera is in the fully retracted position; and

a tilt motor operably interconnected with the launch chute assembly to selectively raise and lower the launch chute member and the lateral camera with respect to the rotate axis.

17. An apparatus for inspecting a lateral conduit from a main conduit, the apparatus comprising:

a frame;

a drive motor interconnected with the frame;

at least one drive gear selectively rotated by the drive motor in one of an insertion direction and a retraction direction;

a push rod cable engaged by the at least one drive gear such that rotation of the at least one drive gear in the insertion and retraction directions causes respective insertion and retraction of the push rod cable with respect to the lateral conduit the push rod cable including

a core having sufficient longitudinal compressive rigidity to allow insertion of the push rod cable into the lateral conduit and having sufficient transverse flexibility to negotiate substantially all bends within the lateral conduit, and

a push rod circuitry disposed along an outside surface of the core;

a lateral camera interconnected with the push rod cable for insertion into the lateral conduit with the push rod cable, wherein the push rod circuitry contains the necessary electrical and video circuitry to operate the lateral camera;

a launch chute assembly interconnected with a front portion of the frame, the launch chute assembly at least partially supporting the lateral camera when the lateral camera is in a fully retracted position;

a rotate motor interconnected with the frame and with the launch chute assembly, and adapted to selectively rotate the launch chute assembly in one of a clockwise and a counterclockwise direction about a rotate axis that is generally parallel to the longitudinal axis; and

said launch chute assembly including

a first bracket interconnected with the frame and rotatable by the rotate motor about the rotate axis;

a second bracket interconnected with the first bracket for rotation therewith about the rotate axis and pivotable with respect to the first bracket about a first

transverse axis that is substantially normal to the rotate axis, the second bracket defining a channel in which the lateral camera is at least partially housed when in the fully retracted position;

a third bracket interconnected with the second bracket for rotation therewith about the rotate axis, the second and third brackets pivotal with respect to each other about a second transverse axis that is substantially normal to the rotate axis; and

a tilt motor interconnected with the third bracket to selectively move the third bracket toward or away from the tilt motor, thereby causing the second bracket to raise or lower the lateral camera with respect to the rotate axis.

18. (Amended) An apparatus for inspecting a lateral conduit from a main conduit, the apparatus comprising:

a frame;

a push rod cable supported by said frame and movable in an insertion direction and a retraction direction with respect to the lateral conduit;

a lateral camera interconnected with the push rod cable for insertion into the lateral conduit with the push rod cable;

a movable friction member interconnected with the frame for movement with respect to the frame, and adapted to frictionally engage an inner surface of a wall of the main conduit; and

a propulsion motor carried by the frame, and operatively interconnected with the movable friction member to cause movement of the friction member to move the apparatus with respect to the main conduit.

19. The apparatus of claim 18, further comprising a remote control station and a supply cable interconnecting the remote control station with the apparatus, the supply cable including all electrical and video circuitry necessary to operate the apparatus from the control station and to allow inspection of the lateral conduit through the lateral camera.

20. (Amended) An apparatus for inspecting a lateral conduit from a main conduit, the apparatus comprising:

a frame;

a push rod cable movable in an insertion direction and a retraction direction with respect to the lateral conduit;

a lateral camera interconnected with the push rod cable for insertion into the lateral conduit with the push rod cable;

a movable friction member interconnected with the frame for movement with respect to the frame, and adapted to frictionally engage an inner surface of a wall of the main conduit;

a propulsion motor carried by the frame, and operatively interconnected with the movable friction member to cause movement of the friction member to move the apparatus with respect to the main conduit; and

a drive motor interconnected with the frame, the drive motor causing the push rod to move in the insertion and retraction directions.

21. The apparatus of claim 20, wherein the propulsion motor is more powerful than the drive motor, and wherein the drive motor is adapted to be selectively locked, thereby preventing insertion and retraction of the push rod cable with respect to the lateral conduit, to permit the propulsion motor to move the apparatus in forward and reverse directions with respect to the main conduit in rapid succession to overcome an obstruction encountered within the lateral conduit.

22. (Amended) An apparatus for inspecting a lateral conduit from a main conduit having a longitudinal axis, the apparatus comprising:

a frame;

a push rod cable supported by said frame and selectively movable in an insertion direction and a retraction direction with respect to the lateral conduit;

at least one camera supported by the frame;

a tilt motor selectively tilting the at least one camera with respect to the longitudinal axis of the main conduit; and

a rotate motor rotating the at least one camera about an axis of rotation that is substantially parallel to the longitudinal axis of the main conduit, the tilt motor and rotate motor cooperating to scan substantially the entire inner surface of the main conduit with the at least one camera.

23. The apparatus of claim 22, further comprising a launch chute assembly, the at least one camera including a lateral camera interconnected with the push rod cable and supported by the launch chute assembly, the launch chute assembly being selectively tilted by the tilt motor to tilt the lateral camera with respect to the longitudinal axis of the main conduit.

24. The apparatus of claim 23, wherein the rotate motor is interconnected with the launch chute assembly to cause the launch chute assembly to rotate about an axis of rotation.

25. The apparatus of claim 24, further comprising a bracket interconnected with the launch assembly, wherein the at least one camera also includes a main camera mounted to the bracket and rotatable about the axis of rotation under the influence of the rotate motor.

26. The apparatus of claim 22, further comprising:

a movable friction member interconnected with the frame for movement with respect to the frame, and adapted to frictionally engage an inner surface of a wall of the main conduit; and

a propulsion motor interconnected with the frame and operatively interconnected with the movable friction member for selective movement of the friction member to cause movement of the apparatus in a direction substantially parallel to the longitudinal axis of the main conduit.

27. The apparatus of claim 22, further comprising a drive motor interconnected with the frame, the drive motor causing the push rod to move in the insertion and retraction directions.

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